Biomedical and Pharmaceutical Applications of Accelerator Mass Spectrometry (AMS)

Abstract

Lawrence Livermore National Laboratory (LLNL) holds broad patent positions are applications of AMS for biomedical and pharmaceutical analysis in both US and Canada. The patent technologies enable quantitative analysis of elemental composition of biomedical samples. In particular, the technologies allow the detection of low-level radioactive trace elements, such as ^{3}H and ^{14}C, as long as the trace element concentration is about one hundred times higher than the background. More detailed information on the technology can be found in US patents 5,376,355, 5,366,721, and 5,209,919, or (AMS web links).

With AMS, the patent technologies enable accurate study of metabolic kinetics of pharmaceutical compounds that cannot be achieved by other commercially available detection methods. One of the utilities of the technologies is to measure metabolic kinetics of compounds in micro-dosing experiments. For years, in Europe and else where, AMS and micro-dosing have been proved as a powerful combined tool for measuring metabolic kinetics in research and clinical trial. Just recently, FDA approved the use of micro-dosing in US. Using AMS and micro-dosing to study drug metabolic kinetics will flourish in US soon.

LLNL has granted several non-exclusive licenses to the technologies for providing AMS services in US and Canada. LLNL plans to issue no more than two such licenses in next two years.

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UCRL-MI-124572